

METHOD AND APPARATUS FOR IMMOBILIZING A FRAMING STRUCTURE IN

ITS FREE STATE TO ESTABLISH A NET DATUM POSITION THEREOF

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1. FIELD OF THE INVENTION

5 The present invention generally relates to a method and apparatus for establishing a net datum position of a framing structure. More specifically, this invention relates to a method and apparatus that finds reference surfaces of an automotive vehicle frame that has been assembled within an acceptable tolerance range, and despite the within-tolerance variation of the reference surfaces on the frame, the frame is
10 immobilized in its free state so that work can be subsequently performed on the frame to fabricate a net datum locating feature in its original design-intent location on the frame.

2. DESCRIPTION OF THE PRIOR ART

 In the manufacturing of automobiles and trucks, a chassis frame typically includes an underbody, a pair of side frames, and front and rear headers wherein such
15 chassis frame usually undergoes a progressive series of positioning and welding steps before a rigid chassis frame is produced. Though vehicle bodies are still manually assembled and welded, emphasis on automated assembly and welding operations has generated numerous automated and semi-automated framing systems.

 Generally, in such prior art processes it is a common object of a framing
20 system to accurately locate the body components relative to each other and maintain such location throughout later welding operations, until the structural rigidity of the body is sufficient to preserve the desired geometric configuration throughout the assembly line. A further object for most framing systems is to provide sufficient flexibility to